



PCT/GB/04/0003



INVESTOR IN PEOPLE

The Patent Office  
Concept House  
Cardiff Road  
Newport  
South Wales  
NP10 8QQ

REC'D 24 FEB 2004

WIPO PCT

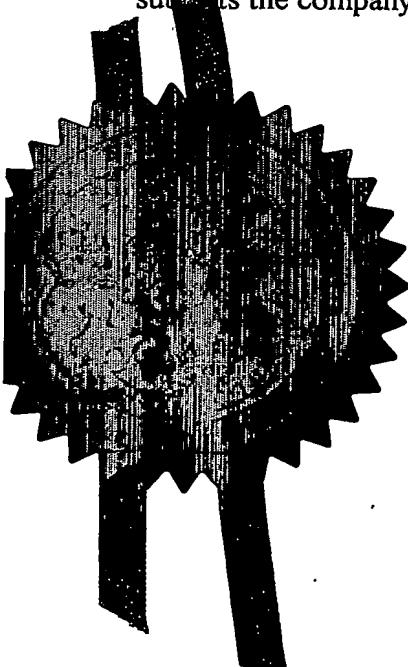
**PRIORITY DOCUMENT**  
SUBMITTED OR TRANSMITTED IN  
COMPLIANCE WITH  
RULE 17.1(a) OR (b)

I, the undersigned, being an officer duly authorised in accordance with Section 74(1) and (4) of the Deregulation & Contracting Out Act 1994, to sign and issue certificates on behalf of the Comptroller-General, hereby certify that annexed hereto is a true copy of the documents as originally filed in connection with the patent application identified therein.

In accordance with the Patents (Companies Re-registration) Rules 1982, if a company named in this certificate and any accompanying documents has re-registered under the Companies Act 1980 with the same name as that with which it was registered immediately before re-registration save for the substitution as, or inclusion as, the last part of the name of the words "public limited company" or their equivalents in Welsh, references to the name of the company in this certificate and any accompanying documents shall be treated as references to the name with which it is so re-registered.

In accordance with the rules, the words "public limited company" may be replaced by p.l.c., plc, P.L.C. or PLC.

Re-registration under the Companies Act does not constitute a new legal entity but merely subjects the company to certain additional company law rules.



Signed

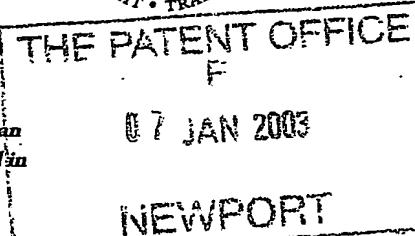
Dated 3 February 2004



1/77

## Request for grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)



The Patent Office

 Cardiff Road  
 Newport  
 South Wales  
 NP10 8QQ

## 1. Your reference

 07 JAN 03 E775148-1 D02282  
 P01/7700 0.00-0300253.2

## 2. Patent application number

(The Patent Office will fill in this part)

0300253.2

07 JAN 2003

## 3. Full name, address and postcode of the or of each applicant (underline all surnames)

 Haygrove Limited  
 Redbank  
 Ledbury  
 Herefordshire HR8 2JL

Patents ADP number (if you know it)

8482366001

If the applicant is a corporate body, give the country/state of its incorporation

Great Britain

## 4. Title of the invention

Polytunnel System

## 5. Name of your agent (if you have one)

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

 Marks & Clerk  
 27 Imperial Square  
 Cheltenham  
 Gloucestershire GL50 1RQ  
 United Kingdom

Patents ADP number (if you know it)

18014 ✓

## 6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number

 Country      Priority application number  
 (if you know it)      Date of filing  
 (day / month / year)

## 7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

 Number of earlier application      Date of filing  
 (day / month / year)

## 8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if:

- a) any applicant named in part 3 is not an inventor, or
- b) there is an inventor who is not named as an applicant, or
- c) any named applicant is a corporate body.

See note (d))

Yes

**Patents Form 1/77**

9. Enter the number of sheets for any of the following items you are filing with this form.  
Do not count copies of the same document

Continuation sheets of this form

Description	6
Claim(s)	Nil
Abstract	Nil
Drawing(s)	1 (1)

10. If you are also filing any of the following, state how many against each item.

Priority documents

Translations of priority documents

Statement of inventorship and right to grant of a patent (Patents Form 7/77)

Request for preliminary examination and search (Patents Form 9/77)

Request for substantive examination (Patents Form 10/77)

Any other documents  
(please specify)

11. I/We request the grant of a patent on the basis of this application.

Signature

Date

Agents for the Applicants 06.01.03

12. Name and daytime telephone number of person to contact in the United Kingdom

Richard A. Bailey - 01242 524520

**Warning**

After an application for a patent has been filed, the Comptroller of the Patent Office will consider whether publication or communication of the invention should be prohibited or restricted under Section 22 of the Patents Act 1977. You will be informed if it is necessary to prohibit or restrict your invention in this way. Furthermore, if you live in the United Kingdom, Section 23 of the Patents Act 1977 stops you from applying for a patent abroad without first getting written permission from the Patent Office unless an application has been filed at least 6 weeks beforehand in the United Kingdom for a patent for the same invention and either no direction prohibiting publication or communication has been given, or any such direction has been revoked.

**Notes**

- a) If you need help to fill in this form or you have any questions, please contact the Patent Office on 08459 500505.
- b) Write your answers in capital letters using black ink or you may type them.
- c) If there is not enough space for all the relevant details on any part of this form, please continue on a separate sheet of paper and write "see continuation sheet" in the relevant part(s). Any continuation sheet should be attached to this form.
- d) If you have answered 'Yes' Patents Form 7/77 will need to be filed.
- e) Once you have filled in the form you must remember to sign and date it.
- f) For details of the fee and ways to pay please contact the Patent Office.

## POLYTUNNEL SYSTEM

This invention relates to a polytunnel system for use in the cultivation of crops.

A polytunnel intended for use in a field typically comprises a pair or rows of 5 legs, each leg of one row together with a corresponding leg of the other row supporting a hoop member. A plastics material covering is stretched over the hoop members to form a tunnel.

The ends of the polytunnel may be of increased rigidity compared to the remainder of the polytunnel, and this may be achieved by using end frames of the 10 type described in GB 0210091.5

A polytunnel of this type may be of relatively large internal volume. At the beginning and end of the growing season, the outdoor temperature is relatively low. Due to the reduced amount of solar heat available during these parts of the growing season the large volume of air within the tunnel requires more heating. 15 Consequently the plants take longer to reach their optimum growing temperature and if artificial heating is used, it will be relatively expensive due to the large volume of air to be heated.

During the middle part of the growing season the polytunnel is used primarily to provide rain cover for the crop. At this time it is desirable to maximise the air

volume within the polytunnel to slow down the rate at which the temperature within the tunnel increases.

Obviously, there is a conflict between the optimum tunnel design for use at the beginning and end of the growing season and for a middle part of the growing 5 season.

It is an object of the invention to provide a polytunnel system whereby the above disadvantages can be reduced.

According to the present invention there is provided a polytunnel system comprising a plurality of cover support members, a series of leg members and a 10 cover, the cover support members being supported by associated ones of the leg members, wherein the cover support members are securable to the leg members at a plurality of different heights.

By permitting the cover support members to be secured to the leg members at a range of heights, the height of the polytunnel, and hence the internal volume 15 thereof, can be varied. As a result, the internal volume of the polytunnel can be reduced during those parts of the growing season when the polytunnel requires heating, improving efficiency, whilst allowing the tunnel height to be increased to increase air flow through the tunnel when this is desired.

Conveniently, each leg member carries a bracket which, in turn, carries the

associated cover support member, the bracket being securable to the leg member in a range of positions. Each leg member may be provided with a series of openings registerable with an opening provided in the bracket to allow the bracket to be secured in position by introducing a pin into the opening of the bracket and the 5 opening of the leg member which is aligned therewith.

The invention will further be described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 is a diagrammatic perspective view of polytunnels in accordance with an embodiment of the invention; and

10 Figures 2 and 3 are views illustrating part of a polytunnel in two different configurations.

Figure 1 illustrates, diagrammatically, a pair of polytunnels 10. Each tunnel 10 comprises a pair of rows of leg members 12 and a series of cover support members 14. Each cover support member 14 is carried by one of the leg members 15 12 of one of the rows, and a corresponding leg member 12 of the other of the rows.

In use, a plastics material cover (not shown) is stretched over the cover support members 14 and secured in position using, for example, a series of ropes stretched over the cover and anchored into the ground.

Each end of each polytunnel 10 is provided with a relatively rigid end frame

structure including a pair of end frames 16, this structure being of the type described in co-pending British Patent Application No. 0210091.5, the content of which is incorporated herein by reference.

Each of the leg members 12 comprises an upright 16, the lower end of which 5 is provided with an anchorage arrangement 18 to allow the leg member 12 to be secured in an upright manner in the ground. The upright 16 is provided with a series of openings 20 spaced apart along the length thereof. A bracket 22 is carried by the upright 16, the bracket 22 including a passage through which the upright 16 extends, and an opening 24 which can be brought into alignment with the openings 20 formed 10 in the upright 16. The bracket 22 further includes a pair of arms 26 to which the cover support members 14 can be secured. A securing pin (not shown) is used to secure the bracket 22 to the upright 16 in a selected position by moving the bracket 22 to bring the opening 24 thereof into alignment with one of the openings 20 of the upright 16 and then introducing the securing pin into the aligned openings to secure 15 the bracket 22 against movement along the upright 16.

It will be appreciated that as the bracket 22 has a pair of arms 26, it can be used in supporting the upper cover support members 14 of a pair of adjacent tunnels.

Referring to Figure 1, the left hand polytunnel 10 is of relatively large height, the brackets 22 thereof being secured to the uprights 16 of the leg members 12

adjacent the upper end of each leg member 12 (see Figure 2). In this condition, as the tunnel contains a relatively high volume of air, heating of the polytunnel during the middle part of the growing season is relatively slow. The right hand polytunnel illustrated in Figure 1 is of reduced height, the brackets 22 having been secured to

5 the uprights 16 in a relatively low position (see Figure 3). In this condition, the volume of air within the polytunnel is relatively low with the result that heating of the polytunnel, for example towards the beginning and end of the growing season can be achieved in a relatively economic manner.

In use, the polytunnel can be erected in the condition shown in the right hand

10 part of Figure 1, and as the growing season progresses the brackets 22 can be lifted, increasing the height of the polytunnel to that illustrated in the left hand part of Figure 1. Again, as the growing season progresses and a point is reached beyond which it is desirable to heat the air within the polytunnel, then the height of the polytunnel can be reduced by lowering each bracket 22, returning the polytunnel

15 towards the configuration illustrated in the right hand part of Figure 1.

Although the description hereinbefore suggests that the main advantage of providing a polytunnel of adjustable height is that the volume of air within the tunnel can be changed depending upon the ambient conditions, a further advantage of the polytunnel of adjustable height is that the height, and hence the cross-section

of the tunnel exposed to the atmospheric or wind conditions can be altered. The risk of damage to the polytunnel caused by exposure to high winds can also therefore be reduced. As the windiest atmospheric conditions tend to occur towards the beginning and end of the growing season, and as during these parts of the growing 5 season it would be usual to place the polytunnel into the condition illustrated in the right hand part of Figure 1, usually no specific action would be necessary to achieve this advantageous effect.

Although the description hereinbefore is of one specific polytunnel arrangement of adjustable height, it will be appreciated that other techniques may 10 be employed to vary the height of the polytunnel, in use, and that all such modifications fall within the scope of the present application.

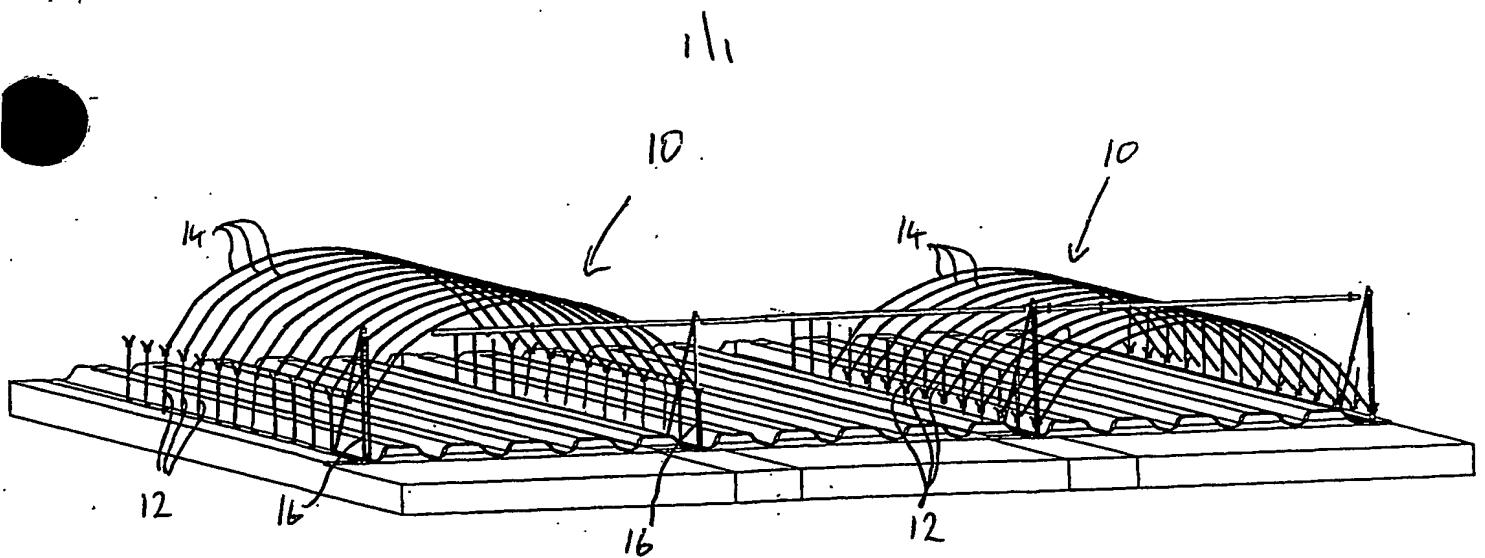


Figure 1

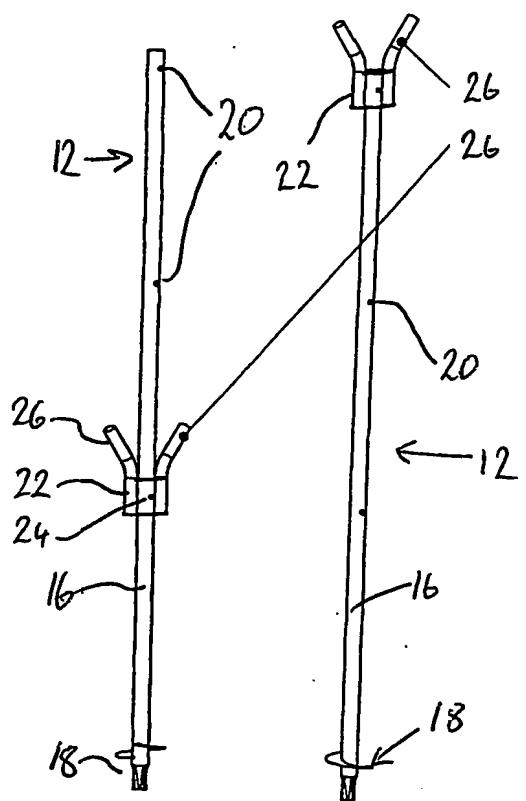


Figure 3

Figure 2.

PCT Application  
**PCT/GB2004/000003**

